

METHOD OF FORMING ROUNDED CORNER IN TRENCH

ABSTRACT OF THE DISCLOSURE

A method for forming a trench having rounded corners in a semiconductor device comprises providing a substrate; forming a first pad oxide layer, a first silicon nitride layer, and a first oxide layer on the substrate sequentially; removing portions of the first oxide layer, the first silicon nitride layer, the first pad oxide layer, and the substrate to form at least one trench; and removing portions of the first oxide layer, the first silicon nitride layer, and the first pad oxide layer in the trench above an upper corner of the substrate in the trench. The substrate includes a lower corner at a bottom of the trench. The method further comprises forming a second pad oxide layer in the trench; forming a second silicon nitride layer on the second pad oxide layer and the first oxide layer; removing portions of the second silicon nitride layer to expose the second pad oxide layer on the corners and the bottom of the trench; forming a thermal oxide layer on the second pad oxide layer exposed by removing the portions of the second nitride layer; and removing the second silicon nitride layer, the thermal oxide layer, and the second pad oxide layer.

60092950 v1